List of Contents

NUMBER 1

N.-A. Noda 1 Stress intensity formulas for three-dimensional cracks in homogeneous and bonded dissimilar materials

J. D. G. Sumpter 17 The energy dissipation rate approach to tearing instability

J. D. G. Sumpter 39 Energy dissipation rate analysis of a low upper shelf data set

J. Faleskog, M. Kroon and **H. Öberg** 57 A probabilistic model for cleavage fracture with a length scale—parameter estimation and predictions of stationary crack experiments

Z. J. Yang and **D. Proverbs** 81 A comparative study of numerical solutions to nonlinear discrete crack modelling of concrete beams involving sharp snap-back

Y. Wei, X. Qiu and **K. C. Hwang** 107 Steady-state crack growth and fracture work based on the theory of mechanism-based strain gradient plasticity

W. Brocks and **P. Anuschewski** 127 Parametrizing ductile tearing resistance by four parameters

147 Calendar

I Keywords

NUMBER 2

K. Solanki, S. R. Daniewicz and **J. C. Newman Jr.** 149 Finite element analysis of plasticity-induced fatigue crack closure: an overview

Y.-J. Kim, D.-J. Shim, N.-S. Huh and **Y.-J. Kim** 173 Elastic–plastic fracture mechanics assessment of test data for circumferential cracked pipes

A. K. Soh and **C. H. Yang** 193 Numerical modeling of interactions between a macrocrack and a cluster of micro-defects

J. Wang and **P. Qiao** 219 Novel beam analysis of end notched flexure specimen for mode-II fracture

J.-S. Hawong, D.-C. Shin and **U.-C. Baek** 233 Validation of pure shear test device using finite element method and experimental methods

M. P. Hughey, D. J. Morris, R. F. Cook, S. P. Bozeman, B. L. Kelly, S. L. N. Chakravarty, D. P. Harkens and **L. C. Stearns** — 245 Four-point bend adhesion measurements of copper and permalloy systems

B. K. Dutta and **H. S. Kushwaha** — 263 A modified damage potential to predict crack initiation: theory and experimental verification

277 Calendar

I Keywords

NUMBER 3

J. Fengchun, L. Ruitang, Z. Xiaoxin, K. S. Vecchio and **A. Rohatgi** — 279 Evaluation of dynamic fracture toughness K_{Id} by Hopkinson pressure bar loaded instrumented Charpy impact test

J.-B. Leblond and **J. Frelat** — 289 Crack kinking from an initially closed, ordinary or interface crack, in the presence of friction

L.-W. Wei and **M. N. James** — 309 Numerical modelling of plasticity-induced crack closure for interfacial cracks in bi-material specimens

J. Li, X.-B. Zhang and **N. Recho** — 329 J–M^p based criteria for bifurcation assessment of a crack in elastic–plastic materials under mixed mode I–II loading

P. Robinson and **S. Das** — 345 Mode I DCB testing of composite laminates reinforced with z-direction pins: a simple model for the investigation of data reduction strategies

G. V. Guinea, F. J. Rojo and **M. Elices** — 365 Stress intensity factors for internal circular cracks in fibers under tensile loading

J. Kim, X. Gao and **T. S. Srivatsan** — 379 Modeling of void growth in ductile solids: effects of stress triaxiality and initial porosity

G. Thiagarajan, K. J. Hsia and **Y. Huang** — 401 Finite element implementation of virtual internal bond model for simulating crack behavior

425 Calendar

I Keywords

NUMBERS 4–6

Special Issue
Fracture and Damage Mechanics
Guest Editors: M.H. Aliabadi and M. Guagliano

M. H. Aliabadi and **M. Guagliano**	427	Advances in Fracture and Damage Mechanics
S. Glodež, B. Aberšek, J. Flašker and **Z. Ren**	429	Evaluation of the service life of gears in regard to surface pitting
B. Aberšek, J. Flašker and **S. Glodež**	439	Review of mathematical and experimental models for determination of service life of gears
F.-G. Buchholz, A. Chergui and **H. A. Richard**	455	Fracture analyses and experimental results of crack growth under general mixed mode loading conditions
A. Munjiza, T. Bangash and **N. W. M. John**	469	The combined finite–discrete element method for structural failure and collapse
A. Carpinteri, R. Brighenti and **A. Landini**	485	A numerical analysis on the interaction of twin coplanar flaws
M. Guagliano and **L. Vergani**	501	An approach for prediction of fatigue strength of shot peened components
J. Stolk, N. Verdonschot, B. P. Murphy, P. J. Prendergast and **R. Huiskes**	513	Finite element simulation of anisotropic damage accumulation and creep in acrylic bone cement
L. Nobile, A. Piva and **E. Viola**	529	On the inclined crack problem in an orthotropic medium under biaxial loading
T. Rabczuk, J. Eibl and **L. Stempniewski**	547	Numerical analysis of high speed concrete fragmentation using a meshfree Lagrangian method
K. Santaoja	557	Gradient theory from the thermomechanics point of view
A. Carpinteri, B. Chiaia and **S. Invernizzi**	567	Numerical analysis of indentation fracture in quasi-brittle materials
H. Nisitani and **T. Teranishi**	579	K_I of a circumferential crack emanating from an ellipsoidal cavity obtained by the crack tip stress method in FEM
R. Moskovic, I. J. Lingham, A. G. Crocker, G. E. Smith and **P. E. J. Flewitt**	587	An experimental and theoretical consideration of the effect of prior creep damage on the heat affected zone fracture toughness of CrMoV steel

P. P. Procházka	601	Application of discrete element methods to fracture mechanics of rock bursts
P. H. Wen, M. H. Aliabadi and **A. Young**	619	Crack growth analysis for multi-layered airframe structures by boundary element method
M. Lambrigger	633	Ductile-to-brittle transition of low activation ferritic–martensitic steels with respect to critical cracks promoting final brittle fracture
J. Kramberger, M. Šraml, I. Potrč and **J. Flašker**	647	Numerical calculation of bending fatigue life of thin-rim spur gears
A. Ivankovic, K. C. Pandya and **J. G. Williams**	657	Crack growth predictions in polyethylene using measured traction–separation curves
G. Cianflone, F. M. Furgiuele and **G. Sciumé**	669	Analysis of the adhesion toughness of a CVD diamond coating
H. Kuna-Ciskał and **J. J. Skrzypek**	681	CDM based modelling of damage and fracture mechanisms in concrete under tension and compression
E. Viola and **A. Marzani**	699	Crack effect on dynamic stability of beams under conservative and nonconservative forces
P. P. Kärenlampi	719	The effect of material disorder on fatigue damage induced by unidirectional loading
L. Goglio and **M. Rossetto**	725	Comparison of fatigue data using the maximum likelihood method
A. Shimamoto, H. Ohkawara and **F. Nogata**	737	Enhancement of mechanical strength by shape memory effect in TiNi fiber-reinforced composites
G. Fajdiga, J. Flašker and **S. Glodež**	747	The influence of different parameters on surface pitting of contacting mechanical elements
B. Atzori, G. Meneghetti and **L. Susmel**	759	Fatigue behaviour of AA356-T6 cast aluminium alloy weakened by cracks and notches
J. Toribio	769	Microstructure-based modelling of fracture in progressively drawn pearlitic steels
S. Schnack and **R. Kienzler**	779	Calculation of the fatigue limit of pulsed laser hardened specimen based on an engineering interpretation of the weakest-link concept

A. Arkhireyeva and **S. Hashemi**	789	Effect of temperature on work of fracture parameters in poly(ether-ether ketone) (PEEK) film
A. M. Korsunsky, K. E. James and **M. R. Daymond**	805	Intergranular stresses in polycrystalline fatigue: diffraction measurement and self-consistent modelling
M. Rakin, Z. Cvijovic, V. Grabulov, S. Putic and **A. Sedmak**	813	Prediction of ductile fracture initiation using micromechanical analysis
L. Gambarotta	829	Friction-damage coupled model for brittle materials
I. Černý	837	The use of DCPD method for measurement of growth of cracks in large components at normal and elevated temperatures
S. Rafiee, D. Gross and **Th. Seelig**	849	The influence of microcrack nucleation on dynamic crack growth—a numerical study
A. Pirondi and **G. Nicoletto**	859	Fatigue crack growth in bonded DCB specimens
I. Dlouhý, Z. Chlup and **V. Kozák**	873	Constraint effects at brittle fracture initiation in a cast ferritic steel
E. Armentani, F. Caputo, R. Esposito and **G. Godono**	885	Evaluation of energy release rate for delamination defects at the skin/stringer interface of a stiffened composite panel
R. C. Yu, G. Ruiz and **A. Pandolfi**	897	Numerical investigation on the dynamic behavior of advanced ceramics
I. Černý and **V. Linhart**	913	An evaluation of the resistance of pipeline steels to initiation and early growth of stress corrosion cracks
	923	Calendar
	I	Keywords

NUMBERS 7–8

Y.-J. Kim, J.-S. Kim, Y.-J. Park and **Y.-J. Kim**	925	Elastic–plastic fracture mechanics method for finite internal axial surface cracks in cylinders

Y.-J. Kim, B.-G. Son and **Y.-J. Kim**	945	Elastic–plastic finite element analysis for double-edge cracked tension (DE(T)) plates
Ł. Figiel, M. Kamiński and **B. Lauke**	967	Analysis of a compression shear fracture test for curved interfaces in layered composites
B. Bezensek and **J. W. Hancock**	981	The re-characterisation of complex defects Part I: fatigue and ductile tearing
B. Bezensek and **J. W. Hancock**	1001	The re-characterisation of complex defects Part II: cleavage
C. Cosenza, L. Fratini, A. Pasta and **F. Micari**	1021	Damage and fracture study of cold extrusion dies
M. Schödel and **U. Zerbst**	1035	Application of the European flaw assessment procedure SINTAP to thin wall structures Analytical assessment levels
A. O. Ayhan	1059	Mixed mode stress intensity factors for deflected and inclined surface cracks in finite-thickness plates
M. Bigerelle and **A. Iost**	1081	Statistical artefacts in the determination of the fractal dimension by the slit island method
E. M. Castrodeza, J. E. P. Ipiña and **F. L. Bastian**	1107	Fracture toughness evaluation of unidirectional fibre metal laminates using traditional CTOD (δ) and Schwalbe (δ_5) methodologies
A. P. Jivkov	1119	Fatigue corrosion crack extension across the interface of an elastic bi-material
S. Dong, Y. Wang and **Y. Xia**	1135	Stress intensity factors for central cracked circular disk subjected to compression
R. M. McMeeking	1149	The energy release rate for a Griffith crack in a piezo-electric material
K. Solanki, S. R. Daniewicz and **J. C. Newman Jr.**	1165	A new methodology for computing crack opening values from finite element analyses
Y.-J. Kim and **K.-H. Schwalbe**	1177	Numerical analyses of strength mis-match effect on local stresses for ideally plastic materials
	1201	Calendar
	I	Keywords

NUMBERS 9–10

Y.-J. Kim, J.-S. Kim, S.-M. Cho and **Y.-J. Kim**	1203	3-D constraint effects on *J* testing and crack tip constraint in M(T), SE(B), SE(T) and C(T) specimens: numerical study
M. B. Modi and **S. K. Sitaraman**	1219	Interfacial fracture toughness measurement for thin film interfaces
S. A. Fawaz and **B. Andersson**	1235	Accurate stress intensity factor solutions for corner cracks at a hole
I. Yamamoto, T. Mukaiyama, K. Yamashita and **ZM. Sun**	1255	Effect of loading rate on absorbed energy and fracture surface deformation in a 6061-T651 aluminum alloy
T. Månsson, H. Öberg and **F. Nilsson**	1273	Closure effects on fatigue crack growth rates at constant and variable amplitude loading
J.-F. Lu and **A. Hanyga**	1289	Scattering of antiplane shear wave by a kinked crack
Y.-L. Lu, X.-P. Huang, X.-F. Jiang and **S.-J. Zhang**	1307	Rapid determination of histories of SIF distributions along 3-D crack fronts of a plate subjected to thermal shock
A. Neimitz, I. Dzioba, J. Gałkiewicz and **R. Molasy**	1325	A study of stable crack growth using experimental methods, finite elements and fractography
F. Zhou, J.-F. Molinari and **Y. Li**	1357	Three-dimensional numerical simulations of dynamic fracture in silicon carbide reinforced aluminum
S. Mahmoud and **K. Lease**	1379	Two-dimensional and three-dimensional finite element analysis of critical crack-tip-opening angle in 2024-T351 aluminum alloy at four thicknesses
S. Erpolat, I. A. Ashcroft, A. D. Crocombe and **M. A. Wahab**	1393	On the analytical determination of strain energy release rate in bonded DCB joints
S. Fortino and **A. Bilotta**	1403	Evaluation of the amount of crack growth in 2D LEFM problems
L. Yang, Q. Chen and **Z. Li**	1421	Crack–inclusion interaction for mode II crack analyzed by Eshelby equivalent inclusion method
J. Vojvodic Tuma and **A. Sedmak**	1435	Analysis of the unstable fracture behaviour of a high strength low alloy steel weldment

I. Oda, A. Willett, M. Yamamoto, T. Matsumoto and **Y. Sosogi** 1453 Non-contact evaluation of stresses and deformation behaviour in pre-cracked dissimilar welded plates

X. Wang and **R. Bell** 1477 Elastic *T*-stress solutions for semi-elliptical surface cracks in finite thickness plates subject to non-uniform stress distributions

1497 Calendar

I Keywords

NUMBER 11

Y. J. Xie, X. H. Wang and **Y. C. Lin** 1501 Stress intensity factors for cracked rectangular cross-section thin-walled tubes

A. R. Ragab 1515 Application of an extended void growth model with strain hardening and void shape evolution to ductile fracture under axisymmetric tension

J.-M. Berthelot and **L. Fatmi** 1535 Statistical investigation of the fracture behaviour of inhomogeneous materials in tension and three-point bending

M. Marrero and **J. Domínguez** 1557 Time-domain BEM for three-dimensional fracture mechanics

P. S. Song and **Y. L. Shieh** 1577 Fracture lifetime of hydrogen-charged AISI 4130 alloy steel under intermittent sustained overloads

A. Neimitz 1585 Modification of Dugdale model to include the work hardening and in- and out-of-plane constraints

K. Wallin and **A. Laukkanen** 1601 Improved crack growth corrections for *J*–*R*-curve testing

Technical Note

X. Yan 1615 A numerical analysis of cracks emanating from a square hole in a rectangular plate under biaxial loads

Discussion

J. G. M. van Mier 1625 Lattice modelling of size effect in concrete strength by Ince R, Arslan A, Karihaloo BL [Engineering Fracture Mechanics 2003;70:2307–20]

Reply
B. L. Karihaloo 1629 Discussion on "Lattice modelling of size effect in concrete strength" by Ince R, Arslan A, Karihaloo BL [Engineering Fracture Mechanics 2003;70:2307–20]

1631 Calendar

I Keywords

NUMBER 12

Z. M. Xiao and **J. Luo** 1635 On the dynamic interaction between a penny-shaped crack and an expanding spherical inclusion in 3-D solid

Z.-H. Jin and **R. H. Dodds Jr.** 1651 Crack growth resistance behavior of a functionally graded material: computational studies

Y.-J. Kim, D.-J. Shim, N.-S. Huh and **Y.-J. Kim** 1673 Approximate elastic–plastic J estimates of cylinders with off-centred circumferential through-wall cracks

S. Maropoulos, N. Ridley, J. Kechagias and **S. Karagiannis** 1695 Fracture toughness evaluation of a H.S.L.A. steel

D. Shen and **T. Fan** 1705 Semi-inverse method for solving circular arc crack problems

F. Nilsson, T. Hansson and **T. Månsson** 1725 Growth of surface cracks under constant and variable amplitude loading

K. Wallin 1737 Warm pre-stress based pre-cracking criteria for fracture toughness testing

C. G. Hwang and **A. R. Ingraffea** 1751 Shape prediction and stability analysis of Mode-I planar cracks

S. Dinda and **D. Kujawski** 1779 Correlation and prediction of fatigue crack growth for different R-ratios using K_{max} and ΔK^{+} parameters

J. E. Nuñez and **G. Glinka** 1791 Analysis of non-localized creep induced strains and stresses in notches

1805 Calendar

I Keywords

NUMBERS 13–14

M. Doblaré, J. M. García and **M. J. Gómez**	1809	Modelling bone tissue fracture and healing: a review
G.-Y. Huang and **Y.-S. Wang**	1841	A new model for fracture analysis of a functionally graded interfacial zone under harmonic anti-plane loading
V. Govorukha, M. Kamlah and **D. Munz**	1853	The interface crack problem for a piezoelectric semi-infinite strip under concentrated electromechanical loading
J. Zhao, X. Wu, R. Liu and **Z. Zhang**	1873	Finite element analysis of a notch root semi-elliptical crack in single crystal superalloy
G. Bolzon	1891	Size effects in concrete gravity dams: a comparative study
G. H. Paulino and **J.-H. Kim**	1907	A new approach to compute *T*-stress in functionally graded materials by means of the interaction integral method
M. Heitzer	1951	Plastic limit loads of defective square plates
F. Jiang, A. Rohatgi, K. S. Vecchio and **R. R. Adharapurapu**	1971	Crack length calculation for bend specimens under static and dynamic loading
T. Fett, V.-B. Pham and **H.-A. Bahr**	1987	Weight functions for kinked semi-infinite cracks
A. Shterenlikht, S. H. Hashemi, I. C. Howard, J. R. Yates and **R. M. Andrews**	1997	A specimen for studying the resistance to ductile crack propagation in pipes
D. J. Smith, S. Hadidimoud and **H. Fowler**	2015	The effects of warm pre-stressing on cleavage fracture. Part 1: evaluation of experiments
D. J. Smith, S. Hadidimoud and **H. Fowler**	2033	The effects of warm pre-stressing on cleavage fracture. Part 2: finite element analysis
D. M. Rodrigues, L. F. Menezes and **A. Loureiro**	2053	The influence of the HAZ softening on the mechanical behaviour of welded joints containing cracks in the weld metal
H. Yoshihara	2065	Mode II *R*-curve of wood measured by 4-ENF test

J. P. Petti and **R. H. Dodds Jr.** 2079 Coupling of the Weibull stress model and macroscale models to predict cleavage fracture

2105 Calendar

I Keywords

NUMBER 15

J. H. Hanson, T. N. Bittencourt and **A. R. Ingraffea** 2109 Three-dimensional influence coefficient method for cohesive crack simulations

P. Feraren and **H. M. Jensen** 2125 Cohesive zone modelling of interface fracture near flaws in adhesive joints

R. Ince 2143 Prediction of fracture parameters of concrete by Artificial Neural Networks

J.-Cl. De Bremaecker and **M. C. Ferris** 2161 Numerical models of shear fracture propagation

V. Tvergaard and **A. Needleman** 2179 3D analyses of the effect of weld orientation in Charpy specimens

F. Barpi 2197 Impact behaviour of concrete: a computational approach

C. Bjerkén and **S. Melin** 2215 A study of the influence of grain boundaries on short crack growth during varying load using a dislocation technique

P. J. Golden and **A. F. Grandt Jr.** 2229 Fracture mechanics based fretting fatigue life predictions in Ti–6Al–4V

H. Lee, H. Nakamura and **H. Kobayashi** 2245 Utilization of thermo-elasto-plastic analysis of welding eigenstrain for improvement of the bead flush method

Erratum

G. Borino and **C. Polizzotto** 2257 Erratum to: Letter to the Editor [Engineering Fracture Mechanics 2003 (70) 1219–21]

2259 Calendar

I Keywords

NUMBERS 16–17

T. Lube and **T. Fett**	2263	A threshold stress intensity factor at the onset of stable crack extension of Knoop indentation cracks
A. P. Bovsunovsky	2271	The mechanisms of energy dissipation in the non-propagating fatigue cracks in metallic materials
X. Wang	2283	Elastic *T*-stress solutions for penny-shaped cracks under tension and bending
A. Piard, D. Gamby, C. Carbou and **J. Mendez**	2299	A numerical simulation of creep–fatigue crack growth in nickel-base superalloys
D. Zheng and **Q. Li**	2319	An explanation for rate effect of concrete strength based on fracture toughness including free water viscosity
K. Wallin, P. Nevasmaa, A. Laukkanen and **T. Planman**	2329	Master Curve analysis of inhomogeneous ferritic steels
J. C. Newman Jr., A. Brot and **C. Matias**	2347	Crack-growth calculations in 7075-T7351 aluminum alloy under various load spectra using an improved crack-closure model
P. Nègre, D. Steglich and **W. Brocks**	2365	Crack extension in aluminium welds: a numerical approach using the Gurson–Tvergaard–Needleman model
A. Miserez, A. Rossoll and **A. Mortensen**	2385	Investigation of crack-tip plasticity in high volume fraction particulate metal matrix composites
D. Taylor	2407	Predicting the fracture strength of ceramic materials using the theory of critical distances
C. Thaulow, E. Østby, B. Nyhus, Z. L. Zhang and **B. Skallerud**	2417	Constraint correction of high strength steel. Selection of test specimens and application of direct calculations
H. B. Chew, T. F. Guo and **L. Cheng**	2435	Vapor pressure and residual stress effects on the toughness of polymeric adhesive joints
J. D. Landes and **K.-H. Schwalbe**	2449	An analysis of creep deformation parameters. Part 1: background
J. D. Landes and **W. Dietzel**	2463	An analysis of creep deformation parameters. Part 2: experimental study

J. D. Landes, D.-H. Kim, J. Heerens and **K.-H. Schwalbe** 2475 An analysis of creep deformation parameters. Part 3: numerical evaluation

R. Liu, T. Zhang, X. J. Wu and **C. H. Wang** 2493 Effect of crack closure in a specially orthotropic cylindrical shell containing an axial or a circumferential crack

J. A. Joyce and **P. J. Joyce** 2513 Toughness characterization of a metal filled Poly-TetraFluoroEthylene using the *J*-integral

D. L. Rudland, Y.-Y. Wang, G. Wilkowski and **D. J. Horsley** 2533 Characterizing dynamic fracture toughness of linepipe steels using the pressed-notch drop-weight-tear test specimen

Technical Note
T. Fett, G. Rizzi and **E. Diegele** 2551 Weight functions for cone cracks

Erratum
P. Robinson and **S. Das** 2561 Erratum to "Mode I DCB testing of composite laminates reinforced with *z*-direction pins: a simple model for the investigation of data reduction strategies" [Engineering Fracture Mechanics 2004 (71) 345–364]

2563 Calendar

I Keywords

NUMBER 18

K. Wippler, A. Ricoeur and **M. Kuna** 2567 Towards the computation of electrically permeable cracks in piezoelectrics

N. Eswara Prasad, S. Kumari, S. V. Kamat, M. Vijayakumar and **G. Malakondaiah** 2589 Fracture behaviour of 2D-weaved, silica–silica continuous fibre-reinforced, ceramic–matrix composites (CFCCs)

R. Kouitat Njiwa and **J. von Stebut** 2607 Three dimensional boundary element analysis of internal cracks under sliding contact load with a spherical indenter

Y. Qiao, X. Kong and **E. Pan** 2621 Fracture toughness of thermoset composites reinforced by perfectly bonded impenetrable short fibers

J. Chattopadhyay, B. K. Dutta and **H. S. Kushwaha** 2635 New 'η_{pl}' and 'γ' functions to evaluate *J*–*R* curve from cracked pipes and elbows. Part I: theoretical derivation

J. Chattopadhyay, B. K. Dutta and **H. S. Kushwaha** 2661 New 'η_{pl}' and 'γ' functions to evaluate J–R curve from cracked pipes and elbows. Part II: experimental and numerical validation

Technical Note
J. P. Petti and **R. H. Dodds Jr.** 2677 Constraint comparisons for common fracture specimens: C(T)s and SE(B)s

2685 Calendar

III Contents list

XVII Author index

XXI Keywords